

## REMARKS

### I. REJECTIONS UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

In paragraph 4 of the Office action, the Examiner again rejects claims 14-23 under 35 U.S.C. § 112, first paragraph, as containing subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time that the application was filed. Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

Specifically, the Examiner again objects to the use of "repeated exposures" in the claim preamble (the same preamble which the Examiner conveniently dismisses as a "statement of intended use" when addressing Applicants' arguments about anticipation and obviousness). The Examiner asserts that the notion of temperature cycling is unsupported by Figure 3.

However, the Examiner apparently agrees that the specification discloses cycling of temperatures of 1000 °C and 1100 °C. Thus, the Examiner apparently agrees that the specification discloses what anyone of even minimal skill in the fiber art knows: insulative fibers of the type disclosed and claimed in this application are exposed to high temperatures in, say, a furnace or kiln (note that furnaces and kilns are used herein for ease of explanation; the discussion that follows is equally applicable to any device where the fibers of the invention are used, and should not be viewed as limiting the scope of the claims to furnaces and kilns). If that furnace or kiln has a target temperature of, say, 1000 °C, the control of the temperature in that furnace or kiln is not perfect. The temperature will, sometimes, drop slightly below

1000 °C, e.g., at start-up, or when operating conditions cause a deviation in temperature. This temperature drop will be sensed by a temperature measurement device, such as a pyrometer or thermocouple. When the drop in temperature reaches and this data will drive a control circuit to increase heat flow to the furnace, e.g., by burning more fuel. This will increase the temperature in the furnace or kiln to eliminate the temperature drop. Again, however, control is not perfect, and the increase in temperature will likely overshoot the set point, resulting in a slight increase in temperature above 1000 °C. This temperature change is also sensed and input to the control circuit, so that a decreased quantity of heat is added until the temperature drops down below the set point. The goal of most control circuits is to have each successive increase or decrease be smaller than the previous one, so that, while temperature oscillates around a set point, it does so with decreasing amplitude, effectively damping the variation from the set point until the variation falls within some minimal amount.

Now, the Examiner apparently agrees, as indicated above, that such oscillations are fully disclosed for temperatures of 1000 °C and 1100 °C. The Examiner also apparently agrees that 900 °C is disclosed as a lower limit for service temperature throughout Applicants' specification (the Examiner does not dispute this in the current Office action). Given the common knowledge about how control circuits operate in devices where these fibers are to be used, it seems clear that Applicants have fully disclosed a temperature of 900 °C as the lower limit for the set point for temperature of a furnace or kiln (or any other application) where the fibers of the invention are to be used. If 900 °C is the set point, then it stands to reason the

actual temperature to which the fibers are exposed will vary somewhat above and below this temperature, cyclically, at least during those time when the control circuits of the device are functioning. If the device has no control circuits (i.e., its temperature is controlled manually), then it is even more likely that such variation would occur, and for longer periods of time, as human intervention is less likely to effectively damp the oscillations in temperature.

Taking another situation, presumably the Examiner understands that furnaces and kilns and the like in which the fibers of the invention are installed are not brought to temperature and run forever. Such devices must be occasionally taken out of service for cleaning, maintenance, and the like. When this happens, the fiber insulation is not changed out unless there is some reason to do so. However, the furnace or kiln will generally be cooled to below its service temperature so that the maintenance or cleaning can be performed. Once this is done, and any maintenance or cleaning is complete, the device is returned to its operating temperature. All of this is common knowledge to those of skill in this art. If, as the Examiner admits, 900 °C is disclosed as a lower limit on service temperature, then a device having an operating temperature above this point will be reach that service temperature once when the device is in start-up, and again when the device is brought back to temperature after its first maintenance or cleaning. This alone is enough to support the term “repeatedly exposing” as used in Applicants’ claims.

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In any event, it seems clear that Applicants have possession of the invention where temperature goes above and below 900 °C. The Examiner seems unduly concerned with the notion that this terminology includes temperatures such as 1500

°C, which the Examiner alleges is not supported. First, Applicants contend that their specification provides written description support for any temperature above 900 °C, as would be understood by one of skill in the art as described above. Second, it is well established by now that it is not necessary that Applicants provide *ipsis verbis* support for every point in a claimed range. See *In re Schneider*, 179 USPQ 46 (CCPA 1973); *In re Blaser*, 194 USPQ 122 (CCPA 1977).

The Examiner applies a similar rationale to the time and temperature minimums recited in claim 23. While the Examiner apparently agrees that the figures disclose 3.5 hours and 900 °C as lower limits, the Examiner asserts that the recited ranges include times such as “10 hours” and temperatures such as “1500 °C” which are not explicitly stated in the specification. Applicants respectfully submit that patent applications rarely, if ever, include exemplary support for each possible value of a parameter within a recited range. For one thing, an understanding of the real number system indicates that there are infinitely many values within even the smallest recited range that the parameter can take on. For another thing, even attempting to do this would result in patent applications of sufficient length that entire forests would be laid waste to provide enough paper. Thus, it is always possible to select some arbitrary value in any range and assert that Applicant should not be allowed to claim the range since there is no exemplification of that arbitrary value. Yet if this were an accurate assessment of the law, cases such as *In re Blaser, supra*, could not exist.

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Applicants submit that the law is clear to the extent that, if Applicants can establish possession of one or more endpoints of a range, and possession of points within the range, that they are entitled to claim all of the values in the range for which

the invention is operable. To hold otherwise is to overrule the case law cited herein, as well as other case law. Presumably, the Examiner has no such intention.

Applicants submit that, for the reasons set forth above, the specification fully supports the conclusion that, at the time of filing, Applicants had possession of claims where (1) repeated cycling of temperature above 900 °C occurs; (2) exposure to temperatures of 900 °C occurs, and (3) resistance of at least 3.5 hours occurs.

The Examiner also seems concerned that it is the fibers that experience the recited temperatures, not the insulated article. This is correct, but it does not affect the support for the claims provided by the specification. The claims recite that it is the article that must be protected from the recited temperatures, and the claimed methods recite a way to provide this protection. Thus, the insulated article, as a unit, is exposed to the recited temperatures, but the insulation prevents the article itself from reaching the recited temperatures. This is clear from the claim language used, and no amendment is seen to be necessary to make this interpretation clear to those with skill in the art.

As Applicants have previously pointed out, support for the time period “24 hours” can be found in the specification at page 8.

## II. ANTICIPATION AND OBVIOUSNESS REJECTION

In paragraphs 6 and 7 of the Office action, the Examiner has again rejected claims 14-23 under 35 U.S.C. § 102(b) and/or § 103(a) as anticipated by or obvious over Olds et al. (U.S. Patent No. 5,332,699), Olds et al. (WO 87/05007), and Karppinen et al. (WO 92/09536), each taken alone. Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Examiner asserts that the Declaration of Olds is not persuasive because it is allegedly not commensurate in scope with the claims. The Examiner's reasoning appears to be that the claims do not recite "an active process step," but rather a statement of intended use. The Examiner asserts, without any case law to support him, that such a statement of intended use is only limiting (i.e., can only serve to distinguish the claims from the art) if it creates a structural difference between the claimed composition and the prior art composition.

As Applicants have previously explained, their claims are not drawn to compositions, but to methods of insulating articles against temperatures in excess of 900 °C, to which the article will be repeatedly exposed. The process step involved is associating a article that needs such protection (i.e., that will be exposed to such high temperatures) with the recited insulation. The resulting "structural difference" is that the article, such as a furnace or kiln surface, which had previously been without protection against high temperatures, is now part of an article-insulation combination that does possess resistance against the temperatures recited in the claims. Because the step of associating the article with the insulation provides a different product than the uninsulated article, it is completely unnecessary to recite the subsequent step of exposing the combination to the high temperature conditions. To essentially read out of the claims the limitation that the insulation is combined with an article in need thereof to produce an insulated article, as the Examiner has done, is to erroneously ignore limitations in the claims, a practice which has been condoned by neither the Patent Office Board of Appeals nor the Federal Circuit.

Since a “structural difference” is in fact created, and since the resulting insulated article has the property that it is resistant to high temperatures (i.e.; the combination has a high service temperature as compared to the uninsulated article), the claims are, in fact, different from the disclosure in either Olds reference and from the disclosure in Karppinen et al. The claims are also commensurate with the Declaration of Olds, which is probative of their unobviousness.

The Examiner’s dismissal of the Olds Declaration as “based upon opinion” is inappropriate and incorrect. First, the declaration is of the first named inventor of two of the very references upon which the Examiner relies. Second, the declaration is not based upon merely opinion, but upon Mr. Olds’ recollection of the facts as of the time that he invented the fibers described in the references cited by the Examiner. Third, it is the Examiner who asserts that it would have been obvious to take fibers that are essentially disclosed as fire resistant (i.e., that can pass a fire test) and assume from nothing more than this fire resistance data that these fibers would also function effectively under much more stringent conditions associated with providing insulation against service temperatures above 900 °C. To then dismiss the very declaration of the individual who did the fire resistance testing (and one who is clearly at or above the level of ordinary skill in this art) as “based on opinion” is both unfair and inappropriate.

As Applicants have previously explained, fire resistance is not predictive of service temperature, and the Declaration of Olds supports this. Fibers that resist fire endure high temperatures once, and are then replaced. Fibers that provide protection against high service temperatures endure these temperatures over time (and repeated

cycling, as explained at length above) without shrinking and exposing the insulated article to hot gases. As a result, Olds would not have expected, when he invented his fiber compositions, that they would be useful in high service temperature applications. Similar arguments apply to Karppinen et al, which only disclose fibers useful in loft insulation in dwellings, or in sound insulation, neither of which require or are predictive of performance at the high service temperatures recited in the claims.

In summary, because the insulated article provided by the claimed method is different from that provided in Olds et al. or Karppinen et al. (i.e., it is resistant to repeated exposure to high service temperatures), neither of these references anticipates Applicants' claims. Because there would have been no motivation to select any of the fibers disclosed in Olds et al. or Karppinen et al. to produce such an insulated article, much less to select the specific fiber compositions that Applicants have found to provide protection against repeated exposure to such temperatures, the claimed methods are not obvious over the references. Accordingly, the Examiner's rejection should be withdrawn.

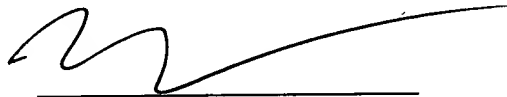


## CONCLUSION

Applicants respectfully submit that this application is in condition for immediate allowance, and an early notification thereof is respectfully requested. If further issues remain to be resolved, the Examiner is respectfully requested to contact the undersigned to resolve these issues prior to issuance of an Advisory Action.

The Commissioner is hereby authorized to charge any deficiencies or credit any overpayment to Deposit Order Account No. 11-0855.

Respectfully submitted,



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